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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,520	10/28/2003	Amit Singhal	NP303	5392
7590 William L. Botjer PO Box 478 Center Moriches, NY 11934		11/20/2007	EXAMINER NGUYEN, TRI V	
			ART UNIT 1796	PAPER NUMBER
			MAIL DATE 11/20/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/695,520	Applicant(s) SINGHAL ET AL.	
	Examiner Tri V. Nguyen	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 26 and 27 is/are rejected.
- 7) ☒ Claim(s) 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Upon entry of the amendment filed on 10/16/07, Claims 1, 11-14 are amended; Claims 26, 27 are added and Claims 15-25 are cancelled. The currently pending claims considered below are Claims 1-14, 26 and 27.

In view of the amendment and remarks, the rejection under 102(b) is withdrawn.

Claim Objections

2. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 26 has been renumbered 27.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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In claim 3, it is unclear as to the claim limitation of the primary and secondary (nano)particle. There is insufficient antecedent basis for this limitation in the claim. Furthermore, is "(aggregate)" part of the claim limitation?

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-14, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armand et al (WO 02/27824 -- US equivalent 2004/0086445 is cited hereon) in view of Chiang et al. (US 2004/0005265).

Armand et al. disclose a synthesis method of an olivine structured LiFeMnPO_4 and LiFePO_4 in which iron, lithium, phosphate and optionally manganese precursors and a sugar (the anti-agglomeration component) are homogeneously mixed in a solvent, the solvent is evaporated, the material is dried and is heated to less than 900 °C for less than 5 hours in an inert atmosphere (see at least abstract, parag. 31-37, 52, 61-75 and examples 3 and 10). The examiner remarks that components a-d in claim 1 and the heating in claim 1 are construed as not necessarily being separate for example the lithium salt and metal salt compounds being the same ingredient and the heating step being a continuous extension of the staggered heating (see examples 3 and 10). Various iron precursors such as iron oxide, iron phosphate, iron sulfate and iron hydroxide are disclosed in parag. 45. Various lithium components such as lithium hydroxide, lithium carbonate and lithium acetates are disclosed in para. 46 and 97. Various phosphate components such as ammonium hydrogen phosphate and ammonium phosphate are disclosed in parag. 47 and 98. The limitation of iron hydroxide coated with an anti agglomeration is met as Armand et al. teach the starting particles being coated with the sugar

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such as glucose and cellulose (parag. 79 and 81). Armand et al. further teach that the starting particles have a particle size of less than 5 micrometers (parag. 41 and claim 50).

Armand et al. disclose the invention of claim 1 but do not explicitly disclose comprising the experimental conditions in the ranges as those recited by the Applicant and the Co, Ni and V components. In an analogous art, Chiang et al. disclose a method of producing an olivine $\text{LiM}'\text{M}''\text{PO}_4$ with M' and M'' being Fe, Mn, Co, Ni and V via a co-precipitation from liquid solvent method in which the metal, lithium, phosphate precursors are mixed in a solvent, dried at a temperature not exceeding 100 °C followed by a two-steps heat treatment in an inert atmosphere (see parag. 62, 68, 69, 83, 90, 126 and table 3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method as taught by Armand et al. One would have been motivated to enhance the synthesis product quality and yield and increase electrochemical performance of the resulting material since each dopant leads to a different conductivity. The claim would have been obvious to the skilled artisan to achieve the synthesis methodology, as the reference teaches similar ingredients within the claimed proportions for the same utility and such modifications are well within the purview of the skilled artisan.

Armand et al. and Chiang et al., however, fail to specifically disclose a composition comprising the particles sizes as those recited by the Applicant.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the portion of the prior art's range which is within the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the

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prima facie case of obviousness. See *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In addition, a *prima facie* case of obviousness exists because the claimed ranges "overlap or lie inside ranges disclosed by the prior art", see *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976; *In re Woodruff*, 919 F.2d 1575, 16USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2131.03 and MPEP 2144.051.

Response to Arguments

6. Applicant's arguments filed on 10/16/07 have been fully considered but they are not persuasive.

a. Regarding the size of the precursor, the examiner notes that Armand et al. disclose a particle size of less than 5 um. Unless a showing of unexpected result is provided, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select the portion of the prior art's range which is within the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In addition, a *prima facie* case of obviousness exists because the claimed ranges "overlap or lie inside ranges disclosed

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by the prior art", see *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976; *In re Woodruff*, 919 F.2d 1575, 16USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2131.03 and MPEP 2144.051.

b. Regarding the unique iron dextran element, the examiner respectfully notes that Armand et al. teach the feature of iron and glucose. Since dextran is a polyglucose, the claimed ingredient would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of a skilled artisan.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tri V. Nguyen whose telephone number is (571) 272-6965. The examiner can normally be reached on M-F 8:00 AM to 5:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NVT

NVT
11/14/2007


Mark Kopec
Primary Examiner